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ABSTRACT

This book comes at a time when epistemological reform is sweeping through the global community of science education. Since the 1970s, the theories of knowing embodied in the teaching activities of school science teachers have been undergoing a major transformation toward more learner-sensitive standpoints. Undergraduate science teaching however, the breeding ground of teachers of school science, has remained largely teacher-centered in many lecture theaters and laboratories. It is little wonder that newly graduated science teachers arrive in school science classrooms ill prepared to practice learner-sensitive teaching. Thus, the motivating force behind this book is to expedite the process of epistemological reform of undergraduate science teaching and align it with the reform goals of the science education community. The knowledge gained from this unique collection of studies can be extended to science courses for all students, those going on directly into science, those planning to become K-12 teachers of science, and those in allied fields as well. Chapters include: (1) "On Being Impressed by College Teaching" (Peter C. Taylor); (2) "From Connections to Survival: Diane's Experiences in the Chemistry Classroom" (Craig Bowen); (3) "What Does That Word Mean? The Importance of Language in Learning Biology" (Noelle Griffiths); (4) "Dynamics of Power in Teaching University Biology: Influence on Student Learning" (Hedy Moscovici); (5) "A Feminist Pedagogy in Undergraduate Science: Conflicting Concepts?" (Kathryn Scantlebury); (6) "College Physics Teaching: From Boundary Work to Border Crossing and Community Building" (Wolff-Michael Roth and Kenneth Tobin); (7) "Promoting Active Learning in a University Chemistry Class: Metaphors as Referents for Teachers' Roles and Actions" (Abdullah O. Abbas, Kenneth A. Goldsby, and Penny J. Gilmer); (8) "Effective Strategies for Active Learning in the Small Chemistry Classroom or Laboratory" (Rosalind Humerick); (9) "Confronting Undergraduate Dualism with Problem-Based Learning" (Harold B. White III); (10) "What It Means To Achieve: Negotiating Assessment in a Biology Course" (Susan Mattson); (11) "Team Teaching in a Restructured Physical Science Course" (Sabitra Brush); (12) "Evolution of a

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University Biology Teacher's Classroom Interactions" (Carol Briscoe); (13) "Learning To Teach Science Using the Internet To Connect Communities of Learners" (Kenneth Tobin); (14) "How Do I Express, Communicate, and Have Legitimated as Valid Knowledge the Spiritual Qualities in My Educational Journey?" (Ben Cunningham); (15) "Spirituality in the Classroom" (Margarita Cuervo); (16) "Dreams in University Computing Education: A Heuristic Self-Study" (Mark Campbell Williams); and (17) "Opalescence at the Triple Point: Teaching, Research, and Service" (Penny J. Gilmer). (MM)

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